

## Moder workshop in Kuopio, December 13, 2017

### Participants, purpose and results of the workshop

Workshop participants:

Savon Voima Oy

- Jussi Puranen, leading specialist, virtual power plant
- Auvo Lindgren, service manager
- Pekka Pennanen, grid planning engineer
- Kari Anttonen, development manager

Moder partners

Siemens AG:

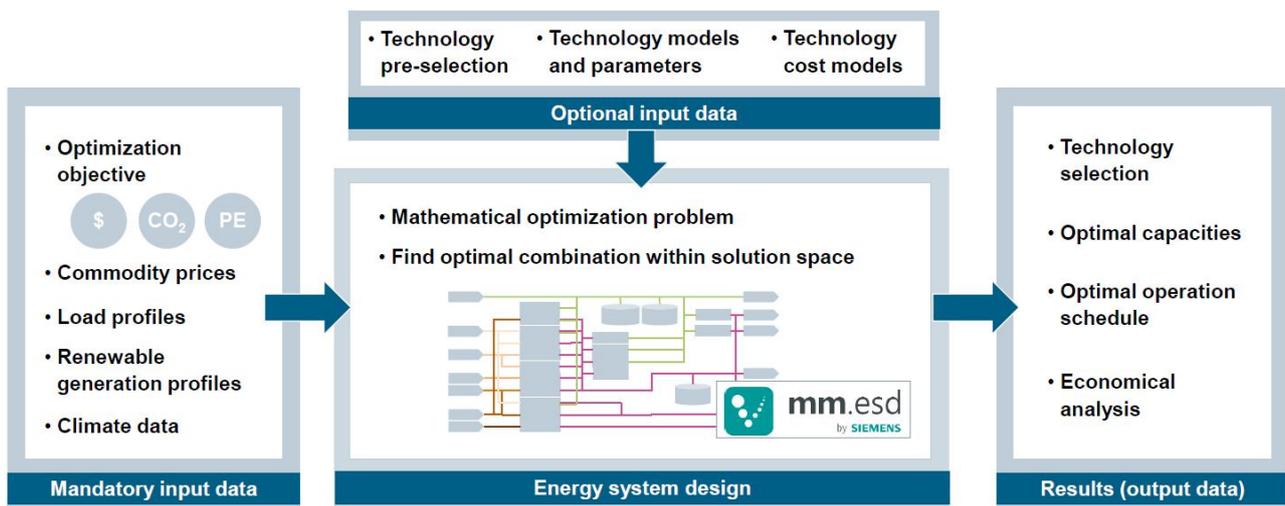
- Sebastian Thiem
- Vladimir Danov

Sweco Finland Ltd.

- Kari Nöjd
- Jyri Nieminen

### Purpose of the workshop

The centre of the City of Suonenjoki is one of the case study areas for Moder. The project has produced a CIM – City Information Model – of the area for energy analysis. The area has been used for testing of the simulation tools (Apros and Moder D-ECA) and Energy System Design Method ESDM. The purpose of the workshop was to present the results of ESDM and to discuss the practical implementation of the ESDM results in practice, Fig. 1.



*ESDM process for case study Suonenjoki.*

Savon Voima Oy is a local energy producer and electric grid operator for the City of Suonenjoki. The Savon Voima team participating the workshop is responsible for the future options for the electricity grid and district heating systems within its operations as well as development of virtual power plant for future distributed energy systems.

### Workshop results

The Savon Voima company is in the process of renewing the district heating substations in Suonenjoki. The fuels for the district heating are wood chips and peat. Siemens AG presented the possibilities for reduction of CO<sub>2</sub> emissions from the district heat production by innovative energy system changes and alternative fuel options. The most economic option regarding present fuel costs would be changing peat as a fuel to wood energy. This would not require any major changes in the production system.

The argument for peat is the availability and cost of the fuel, although the cost difference is rather narrow. The main barrier may be the availability of the wood for energy production purposes. There is an increasing trend of wood energy which may impact on the economy and availability of wood based fuels.

Other possibilities included major changes in the production systems, e.g. solar power plants. So far, the Moder project has concentrated on distributed solar power at building level. A meaningful increase in the solar power for emission reduction would require solar power plants.

Virtual power plant is one of the options for CO<sub>2</sub> reduction in the near future. A virtual power plant can handle distributed electricity production from several sources. The virtual power plant can utilise already available small-scale hydropower as a basic source, and complete the demand by distributed energy. The virtual power plant is under development, and at this stage the options are still open.